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REPLY

The Applicants request reconsideration of the rejection.

Claims 1 and 3-20 remain pending.

Claims 1-2 and 4 were rejected under 35 U.S.C. 102(b) as being anticipated by Schuster et al., U.S. 6,243,846 (Schuster). The Applicants traverse as follows.

At the outset, the Applicants thank the Examiner for the effort expended to explain in greater detail the asserted application of Schuster to the rejected claims. After having carefully considered the Examiner's comments, however, the Applicants continue to assert the patentability of the claims as finally rejected.

Nevertheless, to expedite the allowance of the claims, the subject matter of Claim 2 has been added to Claim 1 as shown above. The amended Claim 1 is believed to more clearly contrast with the disclosure of Schuster as follows.

As rejected, Claim 1 recited an information-processing apparatus for converting information generated by an information generation unit into packets to be transmitted to a network, and for receiving packets from the network, including a management unit for managing FEC (Forward Error Correction) redundancies each provided for a transmission

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partner connected to the network. Against this feature, the
Examiner cites Schuster as "allow[ing] for FEC processes",
citing Column 2, lines 32-43 and Column 17, lines 53-57 of the
patent.

In fact, however, the passage of Column 2 simply
summarizes Schuster as generating and transmitting into a
network one or more Forward Error Correction codes, or parity
packets, at least one of which is defined by taking a cross-
wise XOR sum of a predetermined number of preceding payload
packets, and in turn extracting lost payload from the
redundant information and correcting for the loss of multiple
packets in a row. The passage from Column 17 discloses that
the encoder and decoder processes are preferably operated at
transmitting and receiving ends of the network, and they
employ such hardware as a transmitting computer terminal,
network server, hub or router. Neither passage can be said to
disclose or fairly suggest providing FEC redundancies each for
a transmission partner connected to the network. Simply
"allowing for FEC processes" is not consonant with the scope
of the claim.

The importance of the distinction is highlighted by the
function of the claimed encoding unit, which carries out the

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FEC encoding process by referencing a redundancy held in the
management unit _for a transmission partner identified in the_
TCP/IP packet group to be transmitted to the network.
Schuster appears to disclose encoder means (the Examiner cites
Column 9, line 20 through Column 10, line 24) relating to the
cross-wise XOR sum mentioned in Column 2 as noted above.
Schuster's encoding does not reference a redundancy held for a
transmission partner identified in a TCP/IP packet group,
however.

Further highlighting the difference is the subject matter
added from dependent Claim 2. Claim 1 now further requires
the management unit to have a table stored in a memory, and a
redundancy cataloged in the table _for each transmission_
partner. Further, the redundancy is changed in accordance
with the state of packet loss determined for the transmission
partner for which the redundancy has been cataloged. Against
this feature, the Examiner cites Schuster as inherently
disclosing the storage of catalog redundancies in implementing
the FEC through devices. The Examiner cites Column 9, line 20
through Column 16, line 50. However, whether Schuster
inherently requires storage of catalog redundancies does not

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meet each limitation, and particularly does not meet that the redundancies are cataloged <u>for each transmission partner</u>.

Further, any valid "inherency" does not include that the redundancy for each transmission partner is changed in accordance with a state of packet loss determined for the transmission partner. The passage cited by the Examiner appears to disclose encoding and decoding at transmission and reception ends, including the transmission and reception of plural parity packets. The parity packets, however, are calculated by sequentially XORing each of k incoming packets (with their lengths appended) according to one of three schemes. Schuster does not disclose that any redundancy is changed in accordance with a state of packet loss, or that any state of packet loss is determined for the transmission partner for which the redundancy has been cataloged. Indeed, the Office Action does not assert that Schuster discloses changing the redundancy for any reason.

Claims 3 and 5-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster in view of Chui, U.S. 2002/0165978 (Chui). The Applicants traverse as follows.

Claim 3 is dependent from amended Claim 1 and thus inherits its patentable features discussed above. Chui does

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not disclose the claimed management unit or encoding unit; the
cataloging of redundancies; or the change of a cataloged
redundancy for each transmission partner in accordance with a
state of packet loss determined for the transmission partner
for which the redundancy has been cataloged.

    Further, Claim 3 recites that the means for performing a
TCP/IP conversion process is an iSCSI-protocol processing
means, and that the encoding unit and decoding unit encode and
decode, respectively, an iSCSI packet group. Chui is cited as
teaching the "existence" of iSCSI devices. Respectfully, the
Applicants do not assert to be the first to invent iSCSI
devices. Rather, the present invention has particular
applicability in a network environment having an iSCSI layer.
Neither Schuster nor Chui discloses a motivation to add Chui's
iSCSI devices to the system of Schuster.

    In this regard, the Applicants note the assertion in the
Office Action that the person of ordinary skill would combine
Schuster with Chui "to provide a highly reliable, highly
available, and highly scalable system," citing Paragraph 28 of
Chui. However, neither Paragraph 28 nor the remaining
disclosure of Chui describes how to implement iSCSI devices

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according to Chui in the system of Schuster in order to
achieve the presently-claimed invention.

The repeater of independent of Claim 5 also includes an
encoding unit and a decoding unit for carrying out encoding
and decoding, respectively, respecting iSCSI-layer data.
Further, Claim 5 recites a transmission management table used
for cataloging FEC redundancies each provided for a
transmission destination connected to the network; a reception
management table used for cataloging and managing FEC
redundancies each provided for a transmission source connected
to the network; that the encoding unit provides encoded data
with an FEC redundancy cataloged for a transmission
destination by referencing the transmission management table;
and that the decoding unit references the reception management
table in order to restore the iSCSI-layer data. As noted
above, the requirement to provide each redundancy for the
transmission destination (and in the case of decoding, for
each transmission source) is not shown by either Schuster or
Chui, or by their combination.

Dependent Claim 6 requires the transmission management
table to be used for cataloging an address of each
transmission destination capable of carrying out an FEC

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process, and the reception management table to be used for
cataloging an address of each transmission source capable of
carrying out an FEC process. If the address of the
transmission destination is cataloged, the iSCSI data is
subjected to the FEC encoding process and transmitted to the
network, but if the address is not cataloged, the iSCSI data
is transmitted without being subjected to the FEC encoding
process. Moreover, if the address of the transmission source
is cataloged, the packet data is subjected to the decoding
process, but if not cataloged, the packet data is transferred
to the iSCSI layer without being subjected to FEC decoding.
The rejection does not assert, and neither reference
discloses, a transmission management table or reception
management table that catalogs the addresses of the
transmission destinations and transmission sources,
respectively, and neither reference discloses or suggests the
alternative transmission and reception with or without FEC
encoding/decoding based on whether the address of the
destination or source is cataloged. Rather, the rejection
over-broadly asserts the "inherency" of storing transmission
and reception "data", without explaining how the person of

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ordinary skill would know to modify such broad teachings into the claimed invention.

Dependent Claim 7 further recites a means for changing information cataloged in the transmission management table and information cataloged in the reception management table by analyzing contents of a control frame received from the network in order to add or delete an address to or from the transmission management table or the reception management table. Again, neither Schuster nor Chui discloses the storing of addresses in a transmission management table or reception management table as claimed, and thus there can be no disclosure of means for changing information cataloged in these tables by analyzing contents of a control frame in order to add or delete an address therefrom. Moreover, the rejection does not address this feature of the claim, but merely rejects the claim out-of-hand by repeating grounds for other rejections.

Independent Claim 8 recites a communication method for transmitting data from an apparatus adopting an iSCSI protocol to another apparatus adopting the iSCSI protocol. The method includes alternative communication modes for transmitting and receiving data in FEC or TCP/IP communication modes. Thus, at

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the outset, Schuster and Chui do not disclose the invention of

Claim 8 because, as noted by the Examiner, Schuster discloses

an FEC system that transmits and receives in an FEC

communication mode. Schuster does not disclose or fairly

suggest a method of communicating using two communication

modes, one of which is an FEC communication mode and another

of which is a TCP/IP communication mode.

Moreover, although the Office Action alleges that broad

statements in Schuster teach specific limitations of the

claimed invention, Schuster never discloses cataloging iSCSI

names each representing a partner, even in combination with

Chui. Further, Schuster does not disclose cataloging names

representing a partner serving as a data-communication

destination, and managing the names.

Schuster also does not disclose cataloging FEC

redundancies each provided for a data-communication

destination, and managing the redundancies. Schuster

discloses Forward Error Correction and coding using plural

parity packets, but they are not "each provided for a data-

communication destination".

Schuster also does not disclose a step of forming a

judgment as to whether or not a specific iSCSI name of a

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specific partner serving as a specific data-communication
destination has been cataloged, even in combination with the
teachings of Chui. In fact, Schuster does not disclose
forming any such judgment regarding a name of a specific
partner serving as a specific data-communication destination.
Indeed, the Office Action does not assert any passage in
Schuster alleged to disclose the formation of such a judgment.

    Necessarily, therefore, Schuster cannot be said to teach
carrying out an FEC process based upon a redundancy cataloged
for a specific destination, and transmitting the data
completing the FEC process to the specific destination in the
first communication mode if an outcome of the judgment
indicates that the specific name has been cataloged. Schuster
cannot be said, moreover, to teach transmitting the data in
the second communication mode based on the judgment indicating
that the specific name has not been cataloged. Accordingly,
Claim 8 is also patentable.

    Claim 9 limits the communication method of Claim 8 by a
step of finding a loss ratio of transmitted packets for each
data-communication destination and managing the loss ratios,
and a step of changing the redundancy cataloged for a
particular data-communication destination in the redundancy

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memory in accordance with the loss ratio for the particular
data-communication destination. Again, neither Schuster nor
Chui discloses the finding of a loss ratio, management of such
loss ratios, or changing the redundancy for any reason, let
alone in accordance with a loss ratio found for a particular
destination. Indeed, the Office Action does not assert these
features to be specifically found in Schuster or Chui.

Claim 10 recites steps of cataloging FEC redundancies
each provided for a data-communication destination and
managing the FEC redundancies on a reception side. Neither
Schuster nor Chui disclose such cataloging, particularly on
the reception side, and the Office Action does not appear to
consider the limitation in forming the rejection.

Further, claim 10 recites a step of forming a judgment as
to whether a specific transmission source has been cataloged
in a process to receive specific data. However, neither
Schuster nor Chui discloses this step, and the Office Action
does not address the step by showing more than a broad
allegation that the step is known from the combination of
Schuster and Chui.

Claim 10 also recites carrying out a restoration process
on the basis of the cataloged FEC redundancy for the specific

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transmission source if the outcome of the judgment is that the
iSCSI Name is cataloged. However, neither Schuster nor Chui
mentions judgment, and the Office Action does not point to a
corresponding disclosure.

Independent claim 12 recites a storage system having a
management unit for managing FEC redundancies each provided
for a transmission partner, an encoding unit for carrying out
an FEC encoding process by referencing a redundancy held for
transmission partner, and a decoding unit for carrying out an
FEC decoding process on the information received from the
network. For reason similar to those advanced above, claim 12
is patentable because neither Schuster nor Chui discloses the
management of FEC redundancies each provided for specific
transmission partners.

Claim 13 is directed to a storage system including an FEC
encoding process layer to add a redundancy code to data from
an iSCSI layer, a UDP layer for carrying out a UDP process on
data, and an IP layer for carrying out an IP process on data
from the UDP layer. Although Schuster appears to reference
these three types of layers, neither Schuster nor its
combination with Chui is seen to disclose all three in the
combination claimed.

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Claim 15 is patentable as reciting means for changing redundancy of a redundant code to a value suitable for a transmission destination at the FEC encoding process layer. As noted above, no reference of record discloses to change the redundancy based on transmission destination.

Claim 16 is directed to a communication method having first and second communication modes as discussed above with respect to claim 8. On this basis alone, then, claim 16 is patentable.

Furthermore, claim 16 recites a step of forming a judgment as to whether a partner serving as a data communication destination has an iSCSI layer, on the basis of an iSCSI name; a step of carrying out an FEC process based on an FEC redundancy and on the judgment; and a step of transmitting the data to a communication partner in either the first communication mode or the second communication mode depending on the judgment. Neither Schuster nor Chui teaches these features of claim 16, and the Office Action does not adequately address them in the rejection.

Claim 17 is dependent from claim 12, and thus inherits its patentable features. In addition, claim 17 requires the conversion means, management unit, encoding unit, and decoding

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unit to all be in an FEC conversion adapter connected to a

channel adapter through an interface. It is not seen how the

Examiner finds these features in the combination rejection,

simply by alleging "inherency" and making broad assertions as

to the storage and transmission of data, encoded and then

decoded.

Similarly, claim 18 is limited by the duplicate provision

of the disk drive, disk adapter, cache memory, channel

adapter, and FEC conversion adapter, but is rejected on

seemingly irrelevant grounds.

Claim 19 is also dependent from claim 12, and requires a

server to issue commands to add and delete the addresses of

transmission destinations under control of the management

unit. The rejection also does not address this limitation.

Finally, claim 20, dependent from claim 5, recites a

table that catalogs an iSCSI name of each destination, wherein

an FEC communication is permitted in a transmission of data to

a specific data transmission destination only if the iSCSI

name of the specific data transmission destination is

cataloged in the table. Again, the rejection does not

sufficiently address the limitations of the claim.

In fact, numerous claims are dismissed in the Office

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Action with insufficient reference to specific teachings and,

as noted above, without truly addressing the limitations of

the claims in any defensible manner.

     In view of the foregoing amendments and remarks, the

Applicants request reconsideration of the rejection and

allowance of the claims.

                              Respectfully submitted,

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